



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

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D350-748-243TRN
Job Sheet 191084



Part No: D350-748-243TRN

Job Qty: 1 pcs

Part Name: Crosstube Installation, High Aft



Part Weight: 0 lbs

Status: New

Priority: Medium

Job Created: 2/21/19

Job Tracking No:

Created By: Marie Lajeunesse

Due Date: 4/12/19

Description:

Type: Stock

Note: DWG REV A IPP Rev:A New Issue LL 12.05.08

Ship Via:

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		DAS Sign-off
					Setup Hrs	Run Hrs	Workcenter / Supplier	Lead Time	
100	Mori Seiki TL-40 - 1	1 pcs		4/12/19	2.01	3.57	Mori Seiki TL-40 - 1		662019-06-12 9-89
110	QC 2	1 pcs		4/12/19	0.00	0.00	QC 2 - 1		
							QC 2 - 12		
							QC 2 - 14		
							QC 2 - 17		
							QC 2 - 19		
							QC 2 - 2		
							QC 2 - 20		
							QC 2 - 22		
							QC 2 - 23		
							QC 2 - 25		
							QC 2 - 32		
							QC 2 - 33		
							QC 2 - 35		
							QC 2 - 39		
							QC 2 - 4		
							QC 2 - 40		
							QC 2 - 44		
							QC 2 - 45		
							QC 2 - 48		
							QC 2 - 49		
							QC 2 - 50		
							QC 2 - 51		
							QC 2 - 52		
							QC 2 - 54		
							QC 2 - 56		
							QC 2 - 57		
							QC 2 - 62		
							QC 2 - 63		
							QC 2 - 8		
							QC 2 - 66		

DAS

662019-06-12
9-89

120	Mori Selki TL-40 - 1 - B4B	1 pcs	4/12/19	0.00 3.57	QC 2 - 64	DAS
130	QC 2	1 pcs	4/12/19	0.00 0.00	Mori Selki TL-40 - 1 - B4B	66-2019-06-13
					QC 2 - 1	9-89
					QC 2 - 12	
					QC 2 - 14	
					QC 2 - 17	
					QC 2 - 19	
					QC 2 - 2	
					QC 2 - 20	
					QC 2 - 22	
					QC 2 - 23	
					QC 2 - 25	
					QC 2 - 32	
					QC 2 - 33	
					QC 2 - 35	
					QC 2 - 39	
					QC 2 - 4	
					QC 2 - 40	
					QC 2 - 44	
					QC 2 - 45	
					QC 2 - 48	
					QC 2 - 49	
					QC 2 - 50	
					QC 2 - 51	
					QC 2 - 52	
					QC 2 - 54	
					QC 2 - 56	
					QC 2 - 57	
					QC 2 - 62	
					QC 2 - 63	
					QC 2 - 8	DAS
					QC 2 - 66	66-2019-06-14
					QC 2 - 64	9-89
140	QC 8	1 pcs	4/12/19	0.00 0.00	QC 8 - 12	
					QC 8 - 14	
					QC 8 - 17	
					QC 8 - 20	
					QC 8 - 25	
					QC 8 - 3	
					QC 8 - 32	
					QC 8 - 33	
					QC 8 - 35	
					QC 8 - 39	
					QC 8 - 4	
					QC 8 - 44	
					QC 8 - 45	
					QC 8 - 49	
					QC 8 - 58	
					QC 8 - 8	
					QC 8 - 9	
					QC 8 - 68	
					QC 8 - 67	GP 19-06-21
					QC 8 - 1 (A)	
					QC 8 - 47	
150	Crosstubes - 2 - B4B	1 pcs	4/12/19	0.00 0.81	Crosstubes - 1 - B4B	
					Crosstubes - 2 - B4B	
					Crosstubes - 3 - B4B	
					Crosstubes - 4 - B4B	
190	Packaging 3-1 - Stock - B4B	1 pcs	4/12/19	0.00 0.00	Packaging 3 - 1 - B4B	

					Packaging 3 - 2 - B4B	
					Packaging 3 - 3 - B4B	
					Packaging 3 - 4 - B4B	
					Packaging 3 - 5 - B4B	
					Packaging 3 - 6 - B4B	
					Packaging 3 - 7 - B4B	
					Packaging 3 - 8 - B4B	
					Packaging 3 - 9 - B4B	
					Packaging 3 - 10 - B4B	
					Packaging 3 - 11 - B4B	
					Packaging 3 - 12 - B4B	
					Packaging 3 - 13 - B4B	
					Packaging 3 - 14 - B4B	
					Packaging 3 - 15 - B4B	
					Packaging 3 - 16 - B4B	
					Packaging 3 - 17 - B4B	
					Packaging 3 - 18 - B4B	
					Packaging 3 - 19 - B4B	
					Packaging 3 - 20 - B4B	
					Packaging 3 - 21 - B4B	
					Packaging 3 - 22 - B4B	
					Packaging 3 - 23 - B4B	
					Packaging 3 - 24 - B4B	
					Packaging 3 - 25 - B4B	
					Packaging 3 - 26 - B4B	
					Packaging 3 - 27 - B4B	
					Packaging 3 - 28 - B4B	
					Packaging 3 - 29 - B4B	
					Packaging 3 - 30 - B4B	
					Packaging 3 - 31 - B4B	
					Packaging 3 - 32 - B4B	
					Packaging 3 - 33 - B4B	
					Packaging 3 - 34 - B4B	
					Packaging 3 - 35 - B4B	
					Packaging 3 - 36 - B4B	
200 QC 21 - SA	1 pcs	4/12/19	0.00 0.00		QC 21 - SA - 21	
					QC 21 - SA - 70	
					QC 21 - SA - 53	

BAG SEP 27 2019
21
9:00

Part Op 100 - TL-40 (Mori Seiki CNC Lathe Large) 1-Cut tube on chop saw, leave extra mat'l for facing and install plugs 350-241
 Descriptions: on both ends. 2-Face both sides of tube. 3- Turn program 02000 section on both side as per folio FB468. 4- Turn program
 03000 section on both side as per folio FB468. 5- Blend transition lines only with belt sander 60 grit. Folio
 rev: A Dwg rev: A
 110 - (QC2- Inspect parts off machine FAI/FAIB)
 120 - TL-40 (Mori Seiki CNC Lathe Large) 1- Turn program 04000 section on both side as per folio FB468. 2- Turn
 program 05000 section on both side as per folio FB468. 3- Blend transition lines only with belt sander 60 grit. 4-Scribe
 part # as per Dwg D350-748-243. Folio rev: A Dwg rev: A
 130 - (QC2- Inspect parts off machine FAI/FAIB) PERFORME ULTRASONIC MEASUREMENT
 140 - (QC8- Inspect parts - second check)
 150 - Crosstubes-2 (Crosstubes) 1-Grind machining marks
 190 - Identify and stock in kanban rack
 200 - (QC21- Final Inspection - Work Order Release)

Job BOM

Part / Item	Component Name	Quantity	Operation	Container
D6021-125	Crosstube Material - 17-4Ph SS	1 pcs (1 ea)	100-Mori Seiki TL-40 - 1	F157691

Job Allocations

Operation	Component Part	Required	Inventory	Allocated
100-Mori Seiki TL-40 - 1	D6021-125	1	47	0

2/21/2019

[Dart Hawkesbury] Job Sheet - Lajeunesse, Marie

Part Specifications

Specifications could not be found.

Plex 2/21/19 9:26 AM Dart.lajeunesse.marie



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CANADA
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Container No: S189602



Part: D350-748-243TRN

Job No: 191084

Serial No/Batch: S189602

Revision: A

Inspector:

Exp Date:

Instructions:

Date: 06/12/19

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DART AEROSPACE LTD		Work Order:	191084
Description: Crosstube Assembly (AS350/355 High Aft SS)		Part Number:	D350-748-243
Inspection Dwg: D350-748-243 Rev: A		Page 1 of 2	

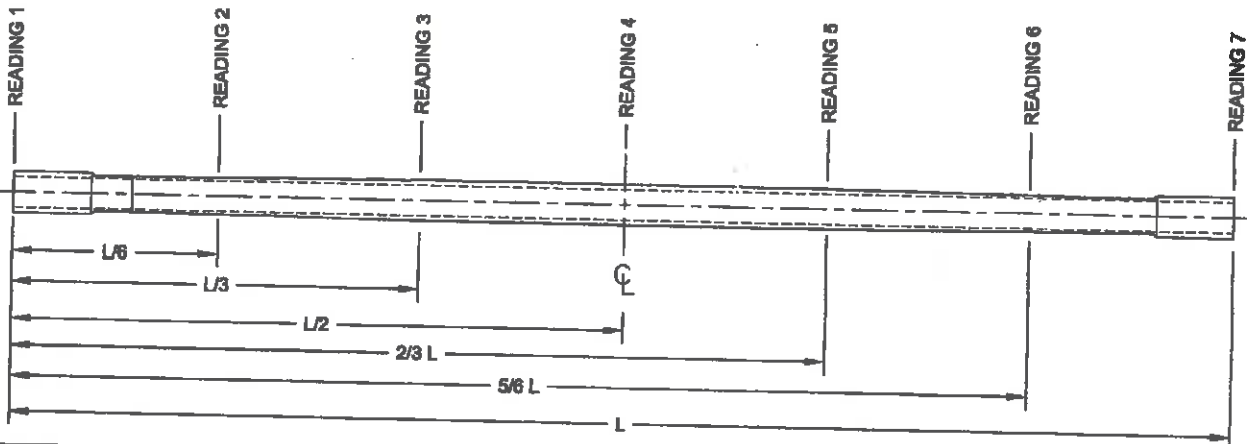
FIRST ARTICLE INSPECTION CHECKLIST

	Inspection Sheet Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	2.240	+/-0.005	2.243	✓		CNC-04	
	2.180	+0.005/-0.000	2.184	✓			
	2.180	+0.005/-0.000	2.185	✓			
	2.208	+0.005/-0.000	2.213	✓			
	2.234	+0.005/-0.000	2.239	✓			
	2.253	+0.005/-0.000	2.258	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.299	+0.005/-0.000	2.304	✓			
	0.063	+/-0.010	.063	✓		CNC-08	
	5.25	+/-0.060	5.249	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.50	+/-0.030	.500	✓		"	
SIDE B	2.240	+/-0.005	2.243	✓		CNC-04	
	2.180	+0.005/-0.000	2.183	✓			
	2.180	+0.005/-0.000	2.187		✓		oversize .002"
	2.208	+0.005/-0.000	2.215		✓		"
	2.234	+0.005/-0.000	2.242		✓		"
	2.253	+0.005/-0.000	2.258	✓			
	2.272	+0.005/-0.000	2.277	✓			
	2.299	+0.005/-0.000	2.304	✓			
	0.063	+/-0.010	.063	✓		CNC-08	
	5.25	+/-0.060	5.248	✓		"	
	R0.063	+/-0.010	.063	✓		RG	
	R0.50	+/-0.030	.500	✓		"	
	124.70	+/-0.060	124.70	✓		Tape	

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DART AEROSPACE LTD		Work Order: 191084
Description: Crosstube Assembly (AS350/355 High Aft SS)		Part Number: D350-748-243
Inspection Dwg: D350-748-243 Rev: A		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	.150	.142	.143	.140	.010	0.030"
READING 2 L= 20.78	.139	.129	.127	.140	.013	
READING 3 L= 41.57	.174	.173	.174	.176	.003	
READING 4 L= 62.35	.175	.175	.176	.176	.001	
READING 5 L= 83.13	.169	.171	.178	.173	.009	
READING 6 L= 103.92	.139	.140	.131	.131	.009	
READING 7 L= 124.70	.140	.141	.137	.136	.005	

Calibration Result

Actual Block Thickness: 100-200

Sitescan 250 Measured Thickness: 100-200

Measured by: **DAS 66**
9-89
Date: 2019-06-14

Audited by: **GP**
Date: 19-06-21

Preliminary Approval: _____
Date: _____

Rev	Date	Change	Revised By	Approved
A	15.09.09	New Issue (P/O D350-748-203)	KJ	

Item	Qty	Part Number	Description
1	X	D350-748-243	CROSS TUBE ASSEMBLY (AS 350365 HI AFT)
2	1	D6021-125	CROSS TUBE
3	2	D3502-1	SUPPORT
4	2	D5123-7	CLAMP CUSHION
5	1	AETC-1032	INSERT
6	2	MS21820-20	CLAMP
7	1	OR MS21820-21-22	(PER DART SPEC. M-MS21820-20/-21-22)
8	1	NAS1149C0363R	WASHER (OR AN860C10)
9	1	NAS1035-3-8	SCREW (OR MS1858-83)
10	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8902 CLASS B-2

GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6021-125
- 2) FINISH: PRIME INSIDE AND OUTSIDE PER TURNING = 124.7060.08 (AFTER BENDING/TRIMMING = 122.70 REF)
- 3) TOLERANCE: PAINT OUTSIDE PER DART QSI 005 4.2
PER DART QSI 016 UNLESS OTHERWISE NOTED.
MIN. ALLOWABLE WALL IS -0.020 FROM NOMINAL
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.008 TO 0.010 MAX.
- 6) IDENTIFICATION: DART PART NUMBER "D350-748-243" AND BATCH NUMBER ON INSIDE OF CUFF
PER DART QSI 044 6.4 (VIBRATING STYLUS)
- 7) WEIGHT: 28.65 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE, EXCEPT FOR Ø.280 HOLE
- 9) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE. WHEN DRILLING HOLES EXTREME CARE MUST BE TAKEN AND CAREFUL DEBURRING PERFORMED TO ENSURE A CLEAN HOLE WITH NO CRACKING/CHIPPING/GROOVES.
- 10) BLEND OUT ALL EDGES FROM MACHINING LONGITUDINALLY. TRANSITION SHOULD BE SMOOTH. NOTE: ALL HOLES ARE DRILLED AFTER BENDING.
- 11) BEND PROGRESSIVELY WITH A MINIMUM OF 7 PASSES PER SIDE. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D. ON TOP HALF OF BEND, AND 8% ON BOTTOM HALF OF BEND.
- 12) MAX AMPLITUDE OF RIPPING ALONG BENT PORTION OF THE TUBE IS 0.030 (ZN A1-3)
- 13) MAX TWIST: WITH XTUBE LAYED FLAT ON SURFACE, THE DIFFERENCE BETWEEN CUFF HEIGHTS FROM THE SURFACE MAY BE NO LARGER THAN 0.38 (ZN C1-3).

ASSEMBLY

- 14) TO INSTALL D3502-1 SUPPORT: ABRASE MATING SURFACE OF SUPPORT AND CROSS TUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.02" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8902 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.
- 15) TORQUE CLAMPS 60 TO 80 IN.LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.

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SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 19089 MJS

19-02-21

DEO ATTACHED

RELEASED

2015 MAR 18

RELEASED

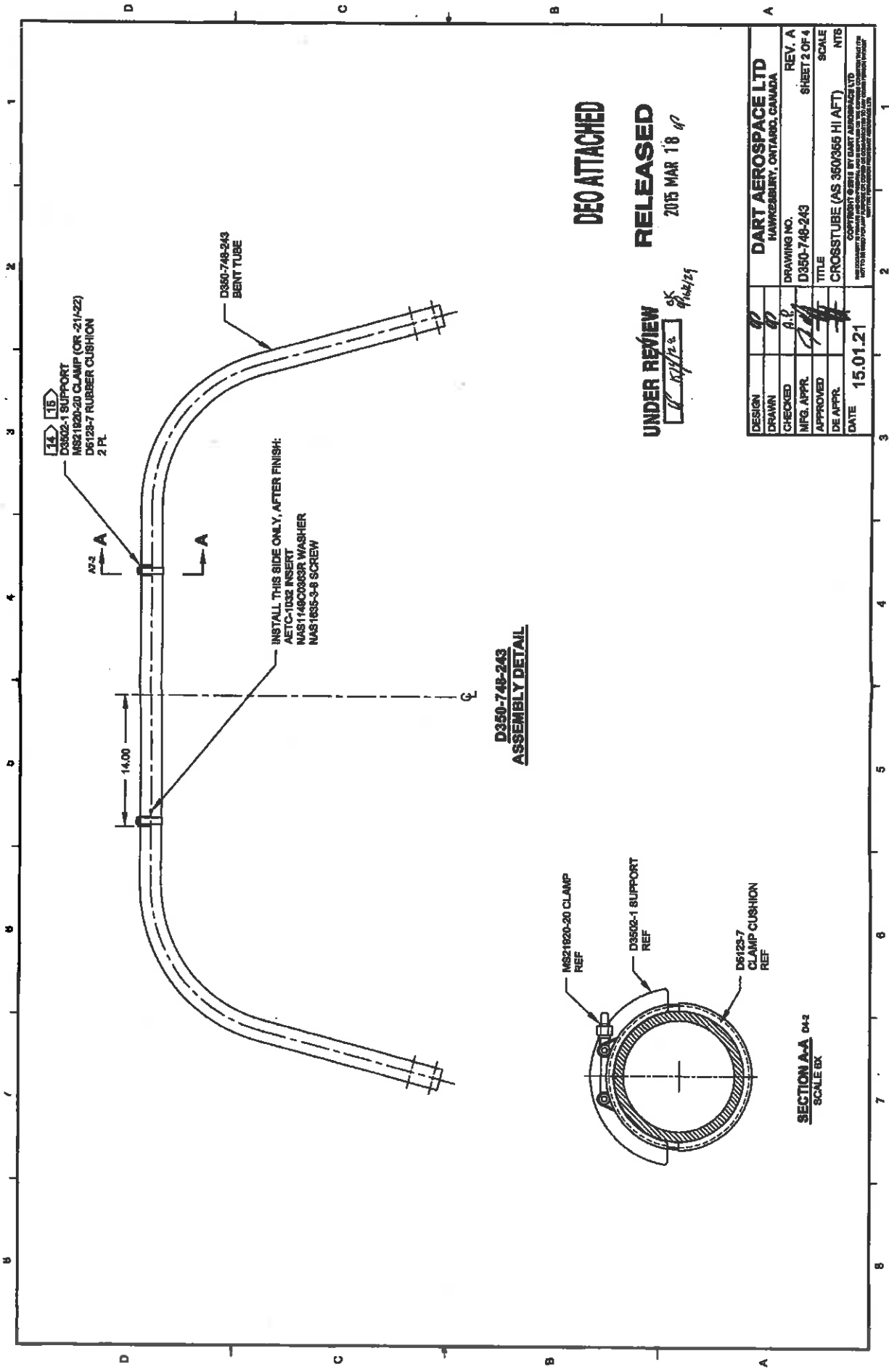
2015 MAR 18

UNDER REVIEW

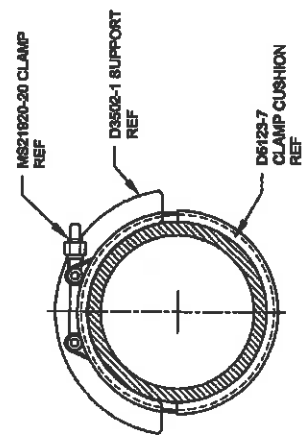
15/11/15
15/11/15

A	NEW ISSUE	DESCRIPTION	CP	BY	DATE
REV.					
DESIGN					
DRAWN					
CHECKED					
INFO. APPR.					
APPROVED					
DE APPR.					
DATE	15.01.21				

DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
DRAWING NO.	D350-748-243
REV. A	
SHEET 1 OF 4	
TITLE	CROSSTUBE (AS 350365 HI AFT)
SCALE	NTS



D350-748-243
ASSEMBLY DETAIL

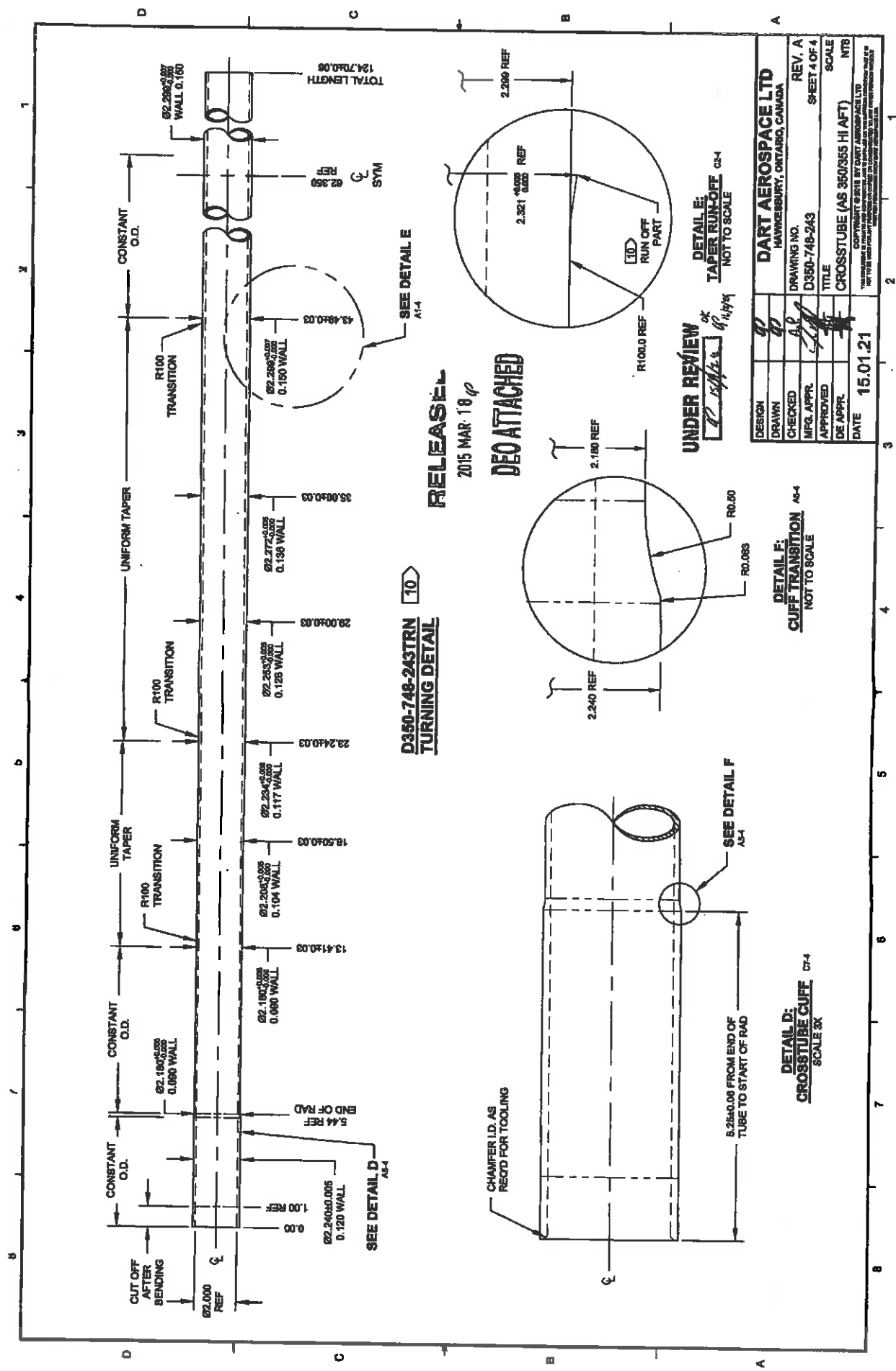


SECTION A-A 04-2
SCALE 6X

UNDER REVIEW
OK 10/12/23 9/14/24
RELEASED
2015 MAR 18 40
DEO ATTACHED

DESIGN	00	DART AEROSPACE LTD HAMMERSLEY, ONTARIO, CANADA	REV. A
DRAWN	00	DRAWING NO. D350-748-243	SHEET 2 OF 4
CHECKED	A.P.	TITLE	SCALE
MFG. APPR.	1/1	CROSSTUBE (AS 350355 HI AFT)	NTS
APPROVED	1/1		
DE APPR.	1/1		
DATE	15.01.21		

CONTRACT 03551 BY DART AEROSPACE LTD
THIS DOCUMENT IS UNCLASSIFIED EXCEPT WHERE SHOWN OTHERWISE IN THE APPROPRIATE CLASSIFICATION PAGE (TOP LEFT) FOR THE PROPOSED DISSEMINATION CATEGORY (01-05)
DATE 15.01.21



RELEASE
2015 MAR 18
DEO ATTACHED

D350-748-243TRN
TURNING DETAIL

DRAWING NO. D350-748-243	TITLE CROSSTUBE	REV. A	DART AEROSPACE LTD ENGINEERING ORDER		D.E.O. NO. D350-748-243-A-1	SHEET NO. SHEET 1 OF 1	SCALE NTS
DRAWN 15.11.18	CHECKED ASS	DATE 15.11.18	MFG. APPR. [Signature]	APPROVED [Signature]	DATE FEB 19 2016	DE APPR. [Signature]	
DATE 15.11.18	DATE 15.11.18	DATE 15.11.18	DATE 15.11.18	DATE 15.11.18	DATE FEB 19 2016	DATE 2016.02.19	

AMEND NOTE 2 (SHEET 1) AS FOLLOWS:

- 2) FINISH: PREPARE SURFACE PER DART QSI 005 4.1.4
 PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
 PAINT OUTSIDE PER DART QSI 005 4.2
 OR
 POWDER COAT WHITE (4.3.5.2) PER DART QSI 005 4.3

RELEASED
 2016-02-26
 EN 16-534